Roy F Weston, Inc.
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MANAGERS DESIGNERS/CONSULTANTS

MEMORANDUM

DATE. 2 December 1998

TO. David Bennett, WAM, U.S. EPA, Region X

FROM. Michelle Turner, Chemist, WESTON, Seattle
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Total Organic Carbon Analysis Results
Laboratory Batch K9805617
Site: Duwamish River

WORK ASSIGNMENT NO : 46-23-0JZZ

WORK ORDER NO.: 4000-019-038-5200-00

DOC CONTROL NO : 4000-019-038-AAAK

cc: Bruce Woods, RAP-WAM, U S EPA, Region X
Dena Hughes, Site Manager, WESTON, Seattle (memo only)
Kevin Mundell-Jackson, Database Management, WESTON

The quality assurance review of fifteen sediment samples, laboratory batch K9805617, collected from the Duwamish River has been completed. The sediment samples were analyzed for total organic carbon (TOC) using EPA Method 9060 by Columbia Analytical Services of Kelso, WA. The samples were numbered:

98344057	98344058	98344059	98344060	98344061
98344062	98344063	98344064	98344065	98344066
98344067	98344068	98344069	98344070	98344071

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control specifications described in the technical specifications of the laboratory subcontract.

1. Holding Times

All samples were cooled with ice or refrigerated from the time of collection until analysis. A maximum holding time of 14 days was specified in the Duwamish River Sampling and Analysis Plan. All TOC analyses were performed within 12 days of sample collection

2 Instrument Detection Limits

All laboratory detection limits are equal to or less than the project-required detection limits of 200 mg/kg.

3 Initial Calibration

A calibration verification check was analyzed prior to sample analysis Results met control limits of 90 to 110 percent recovery of the true value.

4. Continuing Calibration Verification

Continuing calibration checks were performed initially and after every 10 samples. Results for all continuing calibration checks met control limits of 90 to 110 percent recovery of the true value.

5. Laboratory Method Blanks

Laboratory method blanks were prepared and analyzed with each batch of samples TOC was detected in laboratory method blank at a concentration of 0 01 percent or 100 mg/Kg. As all sample concentrations were significantly greater than five times the blank concentration, no qualifiers were assigned based on method blank results.

6 Laboratory Control Sample

The recoveries for TOC were within the control limits of 80 to 120 percent

7. Laboratory Duplicate Sample Analysis

The percent relative percent difference (RPD) between replicate analytical results was within the QC limit of 35 percent

8. Matrix Spike Analysis

Matrix spike recoveries for all analytes met QC criteria of 70 to 130 percent.

9. Field Duplicate Analysis

Samples 98344058 and 98344059 were "blind" field duplicate samples. The relative percent difference between duplicate results was within project limits of less than 35%.

10. Sample Analysis

A cursory review of raw data was performed No problems were noted. Triplicate analyses were not performed for this SDG.

11. Laboratory Contact

No laboratory contract was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The material was analyzed for, but was not detected

UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Roy F Weston, Inc	**Service Request:**	K9805617
Project:	Duwamish River/4000-027-001-2019-38	**Date Collected:**	8/19/98
Sample Matrix:	Sediment	**Date Received:**	8/20/98

Carbon, Total Organic

Prep Method	NONE	Units	PERCENT
Analysis Method	9060M	Basis	Dry
Test Notes			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
98344057	K9805617-001	0 05	0 006	1	NA	8/31/98	2 07	
98344058	K9805617-002	0 05	0 006	1	NA	8/31/98	2 72	
98344059	K9805617-003	0 05	0 006	1	NA	8/31/98	2 51	
98344060	K9805617-004	0 05	0 006	1	NA	8/31/98	2 51	
98344061	K9805617-005	0 05	0 006	1	NA	8/31/98	2 01	
98344062	K9805617-006	0 05	0 006	1	NA	8/31/98	1 53	
98344063	K9805617-007	0 05	0 006	1	NA	8/31/98	2 16	
98344065	K9805617-008	0 05	0 006	1	NA	8/31/98	1 67	
98344064	K9805617-009	0 05	0 006	1	NA	8/31/98	2 56	
98344066	K9805617-010	0 05	0 006	1	NA	8/31/98	2 21	
98344067	K9805617-011	0 05	0 006	1	NA	8/31/98	1 77	
98344068	K9805617-012	0 05	0 006	1	NA	8/31/98	2 19	
98344069	K9805617-013	0 05	0 006	1	NA	8/31/98	2 47	
98344070	K9805617-014	0 05	0 006	1	NA	8/31/98	2 58	
98344071	K9805617-015	0 05	0 006	1	NA	8/31/98	2 63	
~~Method Blank~~	~~K9805617-MB~~	~~0 05~~	~~0 006~~	~~1~~	~~NA~~	~~8/31/98~~	~~0 01~~	~~J~~

M Modified

MQT 11/23/98

Approved By _____ Date 9/3/98

IA/020597p

05617WET LJ1 - Sample 9/3/98